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### **REMARKS/DISCUSSION OF ISSUES**

By this amendment, Applicants amend claims 1-12 and 14, and adds new claims 15-18.

Accordingly, claims 1-18 are pending in the application.

Applicants thank the Examiner for acknowledging the claim for priority and receipt of certified copies of all the priority documents, and for indicating that the drawings are acceptable.

Claims 2-12 are amended for non-statutory reasons, to replace European-style claim phraseology with American-style claim language. In particular, claim 5 has also been rewritten in independent form including all limitations of the base claim 1 and the intervening claim 3. The claims are not narrowed in scope and no new matter is added.

New claims are added to at least partially restore the original range of claims that existed before multiple dependencies were removed in the preliminary amendment. No new matter is added.

### **35 U.S.C. § 112**

Applicants respectfully submit that the amendments to claims 1 and 14 overcome the rejections under 35 U.S.C. § 112.

### **CLAIM OBJECTIONS**

Applicants respectfully submit that the amendment to claim 5 overcomes the claim objections

### **35 U.S.C. § 102**

The Office Action rejects the originally-filed claims 1-14 under 35 U.S.C. § 102(b) over Ito et al. U.S. Patent Publication 2001/0015701 ("Ito").

Applicants respectfully submit that all of the pending claims 1-14 are patentable over Ito for at least the following reasons.

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### Claim 1

Among other things, in the antenna of claim 1 each of the first and second printed wiring structures includes a first printed wire on the end face extending from a first one of the side faces to a second one of the side faces along one of the edges of the end face, a second printed wire disposed on the end face in parallel to and spaced apart from the first printed wire, and also extending from the first side face to the second side face, and a third printed wire disposed on the end face extending between the first printed wire and the second printed wire perpendicularly to the first and second printed wires to connect the first printed wire to the second printed wire.

Applicants respectfully submit that lto does not disclose an antenna including the recited first and second printed wiring structures. In particular, none of the embodiments disclosed by lto includes a third printed wire disposed on the end face extending between the first printed wire and the second printed wire perpendicularly to the first and second printed wires to connect the first printed wire to the second printed wire.

The Office Action cites elements 11a, 11a', 12a, and 12a' in FIG. 11 of lto as supposedly corresponding to the recited third printed wire.

However, the third printed wires of claim 1 are each disposed on the same end face of the dielectric substrate as the first and second printed wires of the first and second printed wiring structures. An exemplary and non-limiting embodiment illustrating this feature is shown in FIG. 5 of the present application. In direct and clear contrast, elements 11a, 11a', 12a, and 12a' in FIG. 11 of lto are not disposed on the same upper face (end surface) 2a' as lines 11, 11', 12 and 12', but are instead disposed on side face 2b.

So elements 11a, 11a', 12a, and 12a' in FIG. 11 of lto cannot correspond to the third printed wires of claim 1.

Furthermore, each third printed wire of claim 1 connects the first printed wire to the second printed wire.

In contrast, as plainly seen in FIG. 11 of lto, none of the elements 11a, 11a', 12a, and 12a', alone or in combination, connect the first printed wires 11/12 to the

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second printed wires 11'/12'.

Accordingly, for at least these reasons, Applicants respectfully submit that claim 1 is patentable over Ito.

Claims 2-4 and 12-14

Claims 2-4 and 12-14 depend from claim 1 and are deemed patentable for at least the reasons set forth above with respect to claim 1.

Claim 5

At the outset, claim 5 has been rewritten in independent form including all limitations of the base claim 1 and the intervening claim 3 and is of identical scope to the originally-filed claim 5.

Among other things, in the antenna of claim 5, the first printed wire and the first printed wire is connected to the second printed wire.

The Office Action cites elements 11, 11', 12, and 12' in FIG. 11 of Ito as supposedly corresponding to the recited first and second printed wires, and paragraphs [0095] and [0102] as supposedly disclosing that element 11 is connected to element 11' or that element 12 is connected to element 12'.

At the outset, inspection of FIG. 11 does not show that element 11 is connected to 11' or that element 12 is connected to 12'. Furthermore, paragraph [102] does not even pertain to the embodiment of FIG. 11, but instead pertains to the 8<sup>th</sup> embodiment of FIGs. 13A-B which does not even include any second printed wires 11' and 12'. Meanwhile, there is no mention in paragraph [0095] or elsewhere in Ito that element 11 is connected to element 11' or that element 12 is connected to element 12'.

Furthermore, in the antenna of claim 5, the first and second printed wiring structures that include the third printed wires are deposited on a first end face.

The Office Action cites elements 11a, 11a', 12a, and 12a' in FIG. 11 of Ito as supposedly corresponding to the recited third printed wires of the first and second printed wiring structures.

However, elements 11a, 11a', 12a, and 12a' are not deposited on end face 2a' in FIG. 11 of Ito, so elements 11a, 11a', 12a, and 12a' cannot comprise the third

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printed wires of the first and second printed wiring structures.

Accordingly, for at least these reasons, Applicants respectfully submit that claim 5 is patentable over Ito.

Claims 6-11

Claims 6-11 depend from claim 5 and are deemed patentable for at least the reasons set forth above with respect to claim 5.

NEW CLAIMS 15-18

New claims 15-17 are deemed patentable over Ito for at least the following reasons.

Claim 15

At the outset, claim 15 depends from claim 1 and is deemed patentable for at least the reasons set forth above with respect to claim 1, and for the following additional reason.

Among other things, in the antenna of claim 15, each of the first and second printed wiring structures further includes a fourth printed wire disposed on the one end face, and being connected to one of the first and second printed wires and not connected to the other of the first and second wires.

Ito does not disclose any antenna including such a combination of features. In particular, element 12b' in FIG. 11 of Ito is not disposed on a same end face as the first and second printed wires 11, 11', 12 and 12'.

Accordingly, for at least these reasons, claim 15 is deemed patentable over Ito.

Claim 16

Among other things, the printed circuit board assembly of claim 16 includes an antenna wherein each of the first and second printed wiring structures includes a first printed wire on the end face extending from a first one of the side faces to a second one of the side faces along one of the edges of the end face, a second printed wire disposed on the end face in parallel to and spaced apart from the first printed wire, and also extending from the first side face to the second side face, and a third

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printed wire disposed on the end face extending between the first printed wire and the second printed wire perpendicularly to the first and second printed wires to connect the first printed wire to the second printed wire.

Applicants respectfully submit that Ito does not disclose printed circuit board assembly including an antenna that further includes the recited first and second printed wiring structures. In particular, none of the embodiments disclosed by Ito includes a third printed wire disposed on the end face extending between the first printed wire and the second printed wire perpendicularly to the first and second printed wires to connect the first printed wire to the second printed wire.

Accordingly, for at least these reasons, claim 16 is deemed patentable over Ito.

#### Claim 17

Among other things, in the printed circuit board assembly of claim 17, the first and second printed wiring structures of the antenna comprise silver paste, and wherein the antenna is mounted on the printed circuit board such that the end face of the antenna on which are disposed the first and second printed wiring structures is disposed directly on and immediately adjacent to the printed wiring board.

Applicants do not see these features disclosed by Ito. In particular, all of the embodiments shown in FIGs. 13A, 16A, 18A, and 21A show the antenna is mounted on the printed circuit board such that the end face of the antenna on which are disposed the first and second printed wiring structures is not disposed directly on and immediately adjacent to the printed wiring board, but instead the opposite end face of the antenna is disposed directly on and immediately adjacent to the printed wiring board.

Accordingly, for at least these reasons, claim 17 is deemed patentable over Ito.

#### Claim 18

Among other things, in the printed circuit board assembly of claim 18, each of the first and second printed wiring structures of the antenna further includes a fourth printed wire disposed on the one end face, and being connected to one of the first

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and second printed wires and not connected to the other of the first and second wires.

Ito does not disclose any antenna including such a combination of features. In particular, element 12b' in FIG. 11 of Ito is not disposed on a same end face as the first and second printed wires 11, 11', 12 and 12'.

Accordingly, for at least these reasons, claim 18 is deemed patentable over Ito.

### **CONCLUSION**


In view of the foregoing explanations, Applicants respectfully request that the Examiner reconsider and reexamine the present application, allow claims 1-18 and pass the application to issue. In the event that there are any outstanding matters remaining in the present application, the Examiner is invited to contact Kenneth D. Springer (Reg. No. 39,843) at (571) 283.0720 to discuss these matters.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment (except for the issue fee) to Deposit Account No. 50-0238 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17, particularly extension of time fees.

Respectfully submitted,

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